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Editorial

Computational Intelligence Approaches to Robotics, Automation, and Control

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Computational intelligence (CI) approaches are nature-inspired methods, which offer a wealth of ideas for complex problems solving. Compared with the traditional approaches, the CI approaches are more powerful so that they do not need the reformulation of the problem to search a nonlinear and nondifferentiable space with real world conditions and need for massive parallelism. Another advantage of the CI is the flexibility of the fitness function formulation, which can be expressed as a proper function of the system's output and is suitable for multiobjective (MO) problems.

Robotics is a wide range research which includes design, construction, operation, and applications of robotic systems, as well as computer systems for control, sensory feedback, and information processing, in which CI approaches have been widely employed in automation and control that can take the place of humans in dangerous environments or manufacturing processes or resemble humans in appearance, behaviours, and cognition.

The special issue focuses on the theoretical, numerical, and experimental contributions that describe original research results, innovative concepts that address all aspects of robotics, and CI approaches and are applying their results in the context of robotics, automation, and control. The aim is to establish a common understanding about the state of the field and draw a road map on where the research is heading, highlight the issues, and discuss the possible solutions.

Twenty-three papers are accepted to this special issue after a thorough reviewing process; the acceptance rate is 38.33% of all the submissions.

The special issue reports the continuing efforts to understand the research and development of CI approaches for optimisations and field applications, academic excellence, and ground-breaking research results in robotics, automation, and control systems, which is dedicated to researchers who wish to enhance or broaden their knowledge and expertise on academic and industrial leadership in robotics, high potential growth global robotics market, for example, industrial robotics and professional/domestic service robotics in the European Union, United States, China, and Japan.

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